



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D205-634-041**  
**Job Sheet 171282**



**Part No:** D205-634-041

**Job Qty:** 1 ea

**Part Name:** Replacement Skidtube with Standard Wearplates Fits LH or RH



**Part Weight:** 0 lbs

**Status:** Scheduled

**Priority:** Medium

**Job Created:** 1/30/18

**Job Tracking No:**

**Due Date:** 2/19/18

**Created By:** Michelle Gagnon-Donovan

**Type:** Stock

**Description:**

**Note:** DWG REV H SHEETS 1,2,3,8 IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD IPP Rev. O 06.02.28 Added paperwork EC IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS PER ECN11-684 VERF:EC IPP REV:S 17.12.08 REMOVE GASKET AS PER INTUITIVE INFO DD VERF:JFS

**Ship Via:**

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty   | Start Date | Due Date | Standard |      | Workcenter/Supplier   |            | Sign-off            |
|-------|--------------------|-------|------------|----------|----------|------|-----------------------|------------|---------------------|
|       |                    |       |            |          | Setup    | Run  | Workcenter / Supplier | Lead Time  |                     |
| 90    | Start up Operation | 1 Ea  |            | 2/16/18  | 0.00     | 0.00 | Start Up Skidtubes    |            | <i>mbh</i>          |
| 110   | CNC Bend Skidtubes | 1 pcs |            | 2/16/18  | 0.00     | 0.65 | CNC Bend Skidtube     |            | <i>mbh JSL</i>      |
| 120   | Skidtubes          | 1 pcs |            | 2/17/18  | 0.00     | 2.89 | Skidtubes-2           |            | <i>mbh</i>          |
| 130   | QC                 | 1 pcs |            | 2/17/18  | 0.00     | 0.00 | QC5                   |            | <i>mbh</i>          |
| 140   | Skidtubes          | 1 pcs |            | 2/17/18  | 0.00     | 2.89 | Skidtubes-2           |            | <i>mbh</i>          |
| 150   | QC                 | 1 pcs |            | 2/17/18  | 0.00     | 0.00 | QC10                  |            | <i>38</i>           |
| 160   | QC                 | 1 pcs |            | 2/17/18  | 0.00     | 0.00 | QC5                   |            | <i>9-88 DAS</i>     |
| 170   | HandFinish         | 1 pcs |            | 2/17/18  | 0.00     | 1.31 | HandFinish2           |            | <i>SA 18-3-16</i>   |
| 180   | Powdercoat         | 1 pcs |            | 2/17/18  | 0.00     | 0.34 | Powdercoat1           |            | <i>BO 18-3-20</i>   |
| 190   | QC                 | 1 pcs |            | 2/17/18  | 0.00     | 0.00 | QC3                   |            | <i>BE 18-03-21</i>  |
| 200   | HandFinish         | 1 pcs |            | 2/19/18  | 0.00     | 1.31 | HandFinish4           |            | <i>BE 18-03-21</i>  |
| 210   | QC                 | 1 pcs |            | 2/19/18  | 0.00     | 0.00 | QC5                   |            | <i>38</i>           |
| 215   | DC                 | 1 pcs |            | 2/19/18  | 0.00     | 0.00 | DC                    |            | <i>9-88</i>         |
| 220   | Packaging          | 1 pcs |            | 2/19/18  | 0.00     | 0.00 | Packaging3-1          | <i>DAS</i> | <i>Smr</i>          |
| 230   | QC21-FG            | 1 Ea  |            | 2/19/18  | 0.00     | 0.00 | QC21                  | <i>21</i>  | <i>MAR 2 3 2018</i> |

Part Op 110 - 1-Bend as per program D2580.C on CNC Bender and Folio 16 2-Cut tubes as per Dwg. D2580 3- scribe batch# in Descriptions: aft end of tube

120 - 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004

140 - 1-Weld step D2576 as per Dwg. D2580 and QSI 004 2-Grind welds on step as per Dwg D2580 3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimension. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web.Deburr 6-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr 7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

170 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180 - START TIME: *11:00* OVEN TEMPERATURE: *320°* FINISH TIME: *11:50*

200 - 1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 *M138761* Sikaflex expire date: *1804* 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 *M138761* Sikaflex expire date: *1804* 5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: *M138761*

210 - Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

215 - Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG006

220 - Identify and pack for shipping as per PPPD205-634-041 Location: \_\_\_\_\_ PPP Rev: \_\_\_\_\_

| Job BOM       |                         |               |                       |                            |
|---------------|-------------------------|---------------|-----------------------|----------------------------|
| Part / Item   | Component Name          | Quantity      | Operation             | Container                  |
| D2580-1       | 205 Bent Tube           | 1 Ea (1 ea)   | 90-Start up Operation | S047903                    |
| D2576-3       | Step (Machining Detail) | 1 Ea (1 ea)   | 140-Skidtubes         | R156033                    |
| D4202-1       | Spacer                  | 20 Ea (20 ea) | 140-Skidtubes         | S030798 (x11) S039216 (x9) |
| ALS7-1032-130 | Rivnut                  | 50 Ea (50 ea) | 200-HandFinish        |                            |
| AN3-5A        | Bolt                    | 2 Ea (2 ea)   | 200-HandFinish        |                            |
| AN3C4A        | Bolt                    | 50 Ea (50 ea) | 200-HandFinish        |                            |
| D2594-1       | Plug                    | 16 Ea (16 ea) | 200-HandFinish        |                            |
| D2594-3       | O-Ring                  | 16 Ea (16 ea) | 200-HandFinish        |                            |
| D2855         | Cap                     | 1 Ea (1 ea)   | 200-HandFinish        |                            |
| D3564-11      | Wearplate Aft           | 1 Ea (1 ea)   | 200-HandFinish        |                            |
| D3564-13      | Wearpad Fwd             | 1 Ea (1 ea)   | 200-HandFinish        |                            |
| D3564-5       | Wearplate Center        | 1 Ea (1 ea)   | 200-HandFinish        |                            |
| D3564-9       | Wearplate Fwd           | 1 Ea (1 ea)   | 200-HandFinish        |                            |
| NAS1149C0332R | Washer                  | 50 Ea (50 ea) | 200-HandFinish        |                            |
| NAS1149D0332J | Washer                  | 2 Ea (2 ea)   | 200-HandFinish        |                            |

| Job Allocations       |                |          |           |           |
|-----------------------|----------------|----------|-----------|-----------|
| Operation             | Component Part | Required | Inventory | Allocated |
| 90-Start up Operation | D2580-1        | 1        | 5         | 0         |
| 140-Skidtubes         | D2576-3        | 1        | 45        | 0         |
|                       | D4202-1        | 20       | 959       | 0         |
| 200-HandFinish        | ALS7-1032-130  | 50       | 0         | 0         |
|                       | AN3-5A         | 2        | 263       | 0         |
|                       | AN3C4A         | 50       | 1,944     | 0         |
|                       | D2594-1        | 16       | 428       | 0         |
|                       | D2594-3        | 16       | 581       | 0         |
|                       | D2855          | 1        | 74        | 0         |
|                       | D3564-11       | 1        | 22        | 0         |
|                       | D3564-13       | 1        | 16        | 0         |
|                       | D3564-5        | 1        | 32        | 0         |
|                       | D3564-9        | 1        | 25        | 0         |
|                       | NAS1149C0332R  | 50       | 2,621     | 0         |
|                       | NAS1149D0332J  | 2        | 4,012     | 0         |

| Part Specifications                |  |
|------------------------------------|--|
| Specifications could not be found. |  |

Day 2/7/18 8:28 AM Dart.Gagnon.Michelle

00/828

Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
CANADA  
TEL: 1 813 832-5200  
Email: sales@dartero.com  
www.dartaerospace.com



Container No: S049964

Part: D205-634-041

Job No: 171282

Serial No/Batch: S049964

Revision: H  
Inspector:

Date: 03/12/18



| ITEM | QTY<br>-041 | QTY<br>-045 | QTY<br>-047 | QTY<br>-049 | PART NUMBER                                                               | DESCRIPTION        |
|------|-------------|-------------|-------------|-------------|---------------------------------------------------------------------------|--------------------|
| 1    | X           |             |             |             | D2580-041                                                                 | SKIDTUBE ASSEMBLY  |
| 2    |             | X           |             |             | D2580-045                                                                 | SKIDTUBE ASSEMBLY  |
| 3    |             |             | X           |             | D2580-047                                                                 | SKIDTUBE ASSEMBLY  |
| 4    |             |             |             | X           | D2580-049                                                                 | SKIDTUBE ASSEMBLY  |
| 20   | 1           | 1           | 1           | 1           | D2500-1-190                                                               | EXTRUSION          |
| 21   |             |             | 16          | 16          | D2570                                                                     | BUSHING            |
| 22   | 1           | 1           | 1           | 1           | D2578-3                                                                   | STEP               |
| 23   |             | 4           |             |             | D2579                                                                     | SPACER             |
| 24   | 16          | 16          | 8           | 8           | D2594-1                                                                   | PLUG               |
| 25   | 16          | 16          | 8           | 8           | D2594-3                                                                   | O-RING             |
| 26   | 1           | 1           | 1           | 1           | D2598                                                                     | 205 WEB            |
| 27   | 1           | 1           | 1           | 1           | D2855                                                                     | AFT CAP            |
| 28   | 1           | 1           |             |             | D3584-5                                                                   | WEARSHOE           |
| 29   | 1           | 1           |             |             | D3584-9                                                                   | WEARSHOE           |
| 30   | 1           | 1           |             |             | D3584-11                                                                  | WEARSHOE           |
| 31   | 1           | 1           |             |             | D3584-13                                                                  | WEARSHOE           |
| 32   | 20          | 20          | 24          | 24          | D4202-1                                                                   | SPACER             |
| 33   |             |             | 1           |             | D4406-041                                                                 | WEARPLATE ASSEMBLY |
| 34   |             |             | 1           |             | D4406-043                                                                 | WEARPLATE ASSEMBLY |
| 35   |             |             |             | 1           | D5061-1                                                                   | FWD WEARPLATE      |
| 36   |             |             |             | 1           | D5061-3                                                                   | AFT WEARPLATE      |
| 60   | 50          | 50          |             |             | ALS7-1032-130<br>or AK57-1032-130<br>or AK54-1032-130<br>or AEL5-1032-130 | INSERT             |
| 61   | 50          | 50          |             |             | AN3C4A                                                                    | BOLT               |
| 62   | 2           | 2           | 2           | 2           | AN3-5A                                                                    | BOLT               |
| 63   |             |             | 8           | 8           | AN4-45A                                                                   | BOLT               |
| 64   | 50          | 50          |             |             | NAS1149C0332R                                                             | WASHER (AN980C10L) |
| 65   | 2           | 2           | 2           | 2           | NAS1149D0332J                                                             | WASHER (AN980D10L) |
| 66   |             |             | 8           | 8           | MS21042-4                                                                 | NUT (OR MS21042L4) |

# GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2598 WEB  
POWDER COAT (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
POWDER COAT (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 015 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 33.7 lbs  
D2580-045 = 33.7 lbs  
D2580-047 = 45.1 lbs  
D2580-049 = 32.0 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2598 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 80 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.287 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241-251.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED "P" (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2555 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

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FEB 08 2018

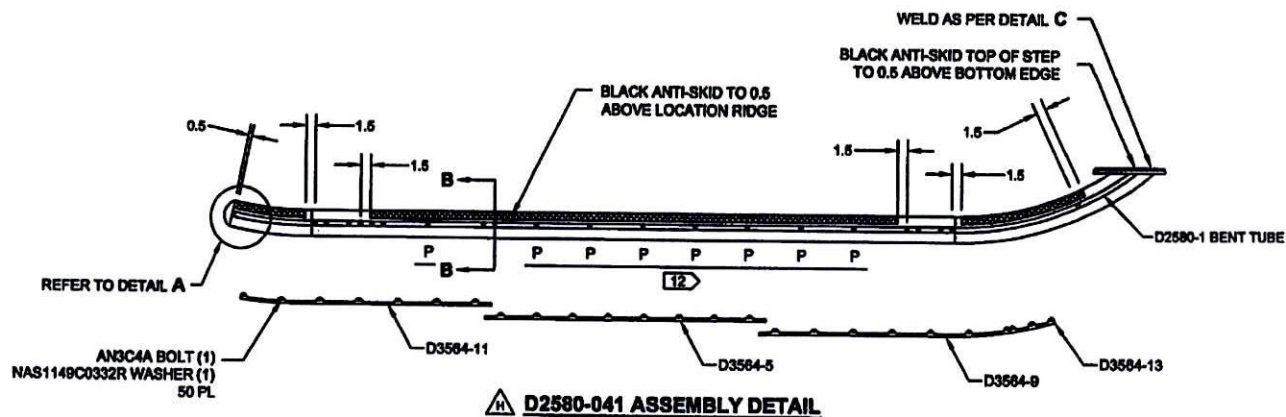
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2017 JUL 05  
ECN17-519

|            |                                                                                                                                                           |     |          |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|
| H          | SHEET: PL DELETE D3586-1/-5/-13 GASKETS, WEIGHTS UPDATED ACCORDINGLY. SHEETS 2 & 4 PICTORIAL UPDATE FOR REMOVAL OF GASKETS                                | SAD | 17.06.09 |
| G          | ADDED -049, -047 WEIGHT UPDATED PER DSI 9598                                                                                                              | AJS | 14.04.09 |
| F          | INCORPORATE DEO D2580-E-1 PER PAR12-218                                                                                                                   | DC  | 13.06.20 |
| E          | ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS T02577-208 (ZN C4-1) | RF  | 11.06.21 |
| D          | CHANGE TO 8S WEARPLATES AND GASKETS, INCLUDE DEO 8124/ 8183                                                                                               | PH  | 07.04.05 |
| C          | REDRAWN, INCLUDED DEO 9094/ 9097                                                                                                                          | CP  | 06.06.26 |
| B          | AS MANUFACTURED                                                                                                                                           | DS  | 06.12.02 |
| A          | NEW ISSUE                                                                                                                                                 | DS  | 06.09.16 |
| REV.       | DESCRIPTION                                                                                                                                               | BY  | DATE     |
| DESIGN     | DS                                                                                                                                                        |     |          |
| DRAWN      | SAD                                                                                                                                                       |     |          |
| CHECKED    |                                                                                                                                                           |     |          |
| MPG. APPR. |                                                                                                                                                           |     |          |
| APPROVED   |                                                                                                                                                           |     |          |
| DE APPR.   |                                                                                                                                                           |     |          |
| DATE       | 17.06.09                                                                                                                                                  |     |          |

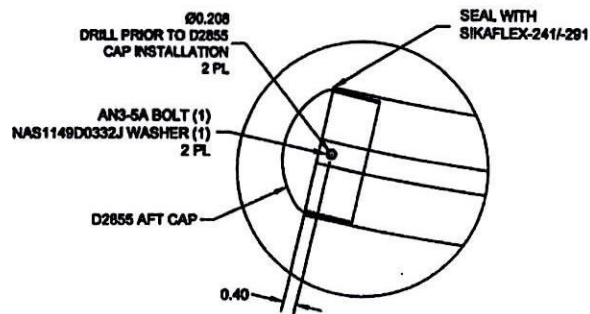
DART AEROSPACE LTD  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D2580  
REV. H  
SHEET 1 OF 9  
TITLE 205 SKIDTUBE ASSEMBLY  
SCALE NTS

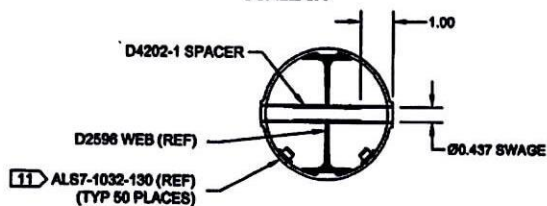
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**DETAIL A**  
SCALE 5X

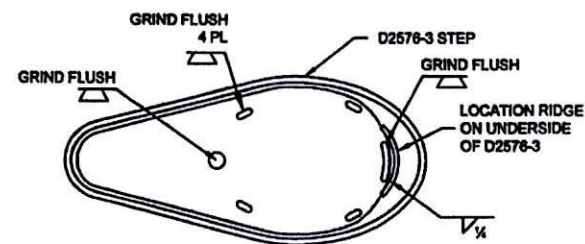


**SECTION B-B**  
SCALE 5X



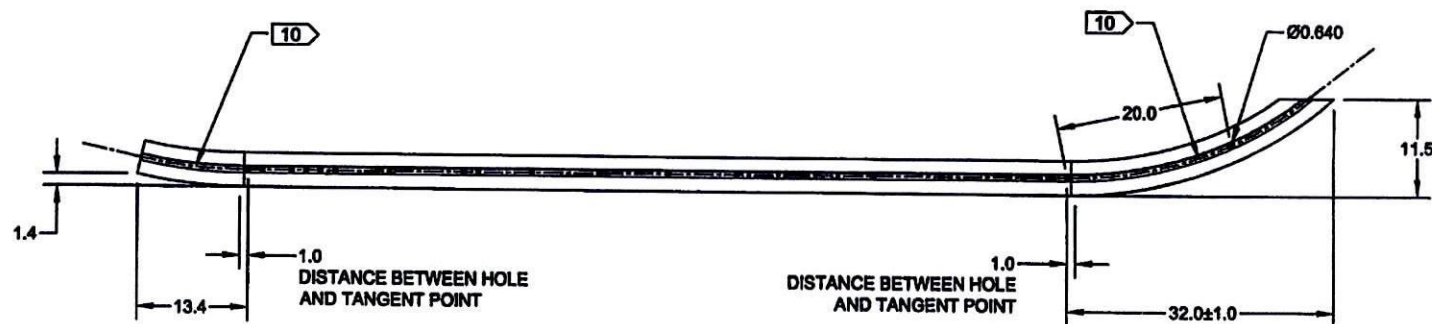
AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:  
1. INSERT D4202-1 SPACER (20 PLACES)  
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002  
3. TRIM / GRIND FLUSH PER QSI 002

**DETAIL C**  
SCALE 5X



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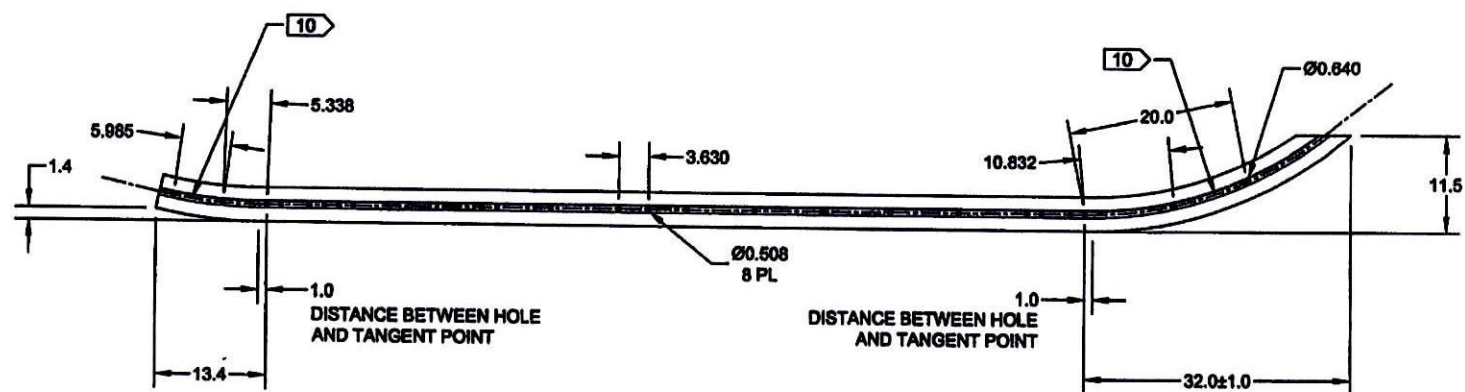
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| MFG. APPR. | <i>[Signature]</i> | D2580                                                                                                                                                                                                                                                 | SHEET 2 OF 9 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                 | SCALE        |
| DE APPR.   | <i>[Signature]</i> | 205 SKIDTUBE ASSEMBLY                                                                                                                                                                                                                                 | NTS          |
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**D2580-1 BENT TUBE**  
(MAKE FROM D2580-101 TUBE)

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| MFG. APPR.                                                                                                                                                             | <i>RS</i> | D2580                                  | SHEET 3 OF 9 |
| APPROVED                                                                                                                                                               | <i>RS</i> | TITLE                                  | SCALE        |
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**D2580-7 BENT TUBE**  
(MAKE FROM D2580-101 TUBE)

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|            |                    |                                                                                                                                                                                                                                                                                                |              |
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| MFG. APPR. | <i>[Signature]</i> | D2580                                                                                                                                                                                                                                                                                          | SHEET 8 OF 9 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                                          | SCALE        |
| DE APPR.   | <i>[Signature]</i> | 205 SKIDTUBE ASSEMBLY                                                                                                                                                                                                                                                                          | NTS          |
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